

GEOG 2220A – Geographic Information Science I

Course Outline: Section 001 Fall 2025

This course is taught in-person

1. Course Information

*Details about design and delivery of the course are listed below in Section 6



Classes Start	Fall Reading Week	Classes End	Study day(s)	Exam Period
September 4	November 3-9	December 9	December 10	December 11-22

Friday September 12, 2025: Last day to add a second-term half course

Tuesday September 30, 2025: National Day for Truth and Reconciliation (non-instructional day).

Monday October 13, 2025: Thanksgiving Holiday

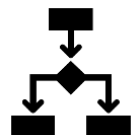
Monday December 1, 2025: Last day to drop a first term half course without penalty



Course Instructor	Contact Information	Office Hours
Professor Jinhyung Lee	jinhyung.lee@uwo.ca	Tuesdays 4:30 – 5:30 PM

Teaching Assistant(s)	Contact Information	Office Hours
See OWL	See OWL	See OWL

2. Calendar Description



An introduction to **fundamentals and principles** of Geographic Information Science, emphasizing both applied and theoretical aspects of digital mapping, spatial data handling, and spatial analysis using both vector and raster data. Practical skills are developed through the use of Geographic Information Systems.

2 lecture hours, 2 laboratory hours, 0.5 course

Senate Regulations state, “unless you have either the requisites for this course or written special permission from your Dean to enroll in it, you will be removed from this course and it will be deleted from your record. This decision may not be appealed. You will receive no adjustment to your fees in the event that you are dropped from a course for failing to have the necessary prerequisites.”

3. Textbook

Textbook (required) : Bolstad, P. and Manson, S. (2022) GIS Fundamentals: A First Text on Geographic Information Systems, 7th Edition. Eider Press.

<https://bookstore.uwo.ca/textbook->

[search?campus=UWO&term=W2025A&courses%5B0%5D=001_UW/GEO2220A](https://bookstore.uwo.ca/textbook-search?campus=UWO&term=W2025A&courses%5B0%5D=001_UW/GEO2220A)



Lab Manual (required): Menke, K. (2019) Discover QGIS 3.x: A Workbook for Classroom or Independent Study. Locate Press.

<https://locatepress.com/book/dq3>

All other course material including lecture slides and lab tutorials will be posted to OWL Brightspace: <https://westernu.brightspace.com/>

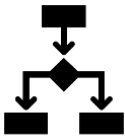
Any changes will be indicated on the OWL site and discussed with the class

4. Course Objectives and Format

Course objectives:

This course introduces students to **both theoretical and applied foundations** of Geographic Information Science (GIScience). The objectives of the course are to:

- Familiarize students with the basic conceptual principles that underlie spatial data representation, handling, processing, and analysis in the digital environment of GIS (geographic information systems).
- Give students the opportunity to develop practical spatial data handling and analysis skills through hands-on GIS labs that guide students through a series of applied problem-solving tasks which demonstrate and implement the conceptual gleaned in lectures.



Google Chrome or Mozilla Firefox are the preferred browsers to optimally use OWL; update your browsers frequently. Students interested in evaluating their internet speed, please click [here](#). [Using the right browser is important, especially when using different features integrated with OWL]

If students need assistance, they can seek support on the [OWL Help page](#). Alternatively, they can contact the [Western Technology Services Helpdesk](#). They can be contacted by phone at 519-661-3800 or ext. 83800.

5. Course Content and Schedule

General

Week	Dates	Lecture	Readings (Textbook)	Lab
1	Sep 4-5	N/A		N/A
Part 1: Foundations of GIS				
2	Sept 8-12	Course overview and introduction		N/A
3	Sept 15-19	Introduction to GIS and spatial thinking	Chapter 1	Tutorial 1 - Introduction to QGIS software
4	Sept 22-26	Mapping	Chapter 4	Lab 1 - Digital map design
5	Sept 29-October 3	National Day for Truth and Reconciliation (no lecture)		Lab 1 - Digital map design
6	October 6-10	Modeling the Earth: Coordinate systems and projections	Chapter 3	Lab 2 - Geographic coordinate systems & projections
7	October 13-17	GIS data: Data types, data sources, spatial data models, and creating and managing spatial data	Chapter 2, 7	Lab 3 - Creating spatial data
8	October 20-24	GIS research - Part 1 GIS for Transportation (GIS-T)	See OWL	Tutorial 2 - Mapping Canadian census data
9	October 27-31	GIS database and attributes queries	Chapter 8	Lab 4 - Attributes queries and spatial queries
10	November 3-7	Reading Week (no lecture)		N/A
Part 2: Spatial analysis				
11	November 10-14	Spatial Analysis I: Vector data analysis	Chapter 9	Lab 5 - Vector data analysis
12	November 17-21	Spatial Analysis II: Raster data analysis	Chapter 10, 11	Lab 6 - Raster data analysis
Part 3: Application and future of GIS				
13	November 24-28	GIS research - Part 2 GIS research at Western		Term project help
14	Dec 1-5	The future of GIS: Big data analytics, geoAI, and genAI	See OWL	Term project help
15	Dec 8-9	Review and exam preparation		N/A

Lab

	Topic	Date	Format
Tutorial 1	Introduction to QGIS software	Sept 15-19	In-class, hands-on exercises with live-demonstrations + help
Lab 1	Digital map design	Sept 22-26 Sept 29-October 3	
Lab 2	Geographic coordinate systems & projections	October 6-10	
Lab 3	Creating spatial data	October 13-17	
Tutorial 2	Mapping Canadian census data	October 20-24	
Lab 4	Attributes queries and spatial queries	October 27-31	
Lab 5	Vector data analysis	November 10-14	
Lab 6	Raster data analysis	November 17-21	
	Term project help	November 24-28	
	Term project help	Dec 1-5	

Term project

	Due date
Infographic-style map	December 12, 2025

Final exam

	Scope	Time, Location	Format
Final exam	Week 1-15	TBD	Multiple choices, short answer questions

6. Generative AI Policy

Students are encouraged to explore and thoughtfully use generative AI tools (e.g., ChatGPT, Gemini) as part of their learning in this course. These tools may provide valuable support for:

- Editing writing for grammar, clarity, and tone
- Obtaining technical assistance (e.g., R, Python, QGIS, ArcGIS Pro)
- Enhancing understanding of mathematical or statistical concepts
- Searching for and gathering information

However, there are **important limitations and ethical expectations**:

- Generative AI **tools must not be used to write original drafts of your assignments**. All submitted work must reflect the student's own thinking and writing.
- Use of AI for **editing is permitted**, but the core ideas, arguments, and structure of assignments must be the student's own.
- Students are expected to use AI tools **ethically** and **transparently** and **must not** misrepresent their level of effort or understanding.
- AI outputs may contain **bias, inaccuracies, or fabricated information**; students are responsible for critically evaluating and verifying all information used.

7. Communication



- ☒ Students should check the OWL site every 24 – 48 hours
- ☒ For any other communication, the centrally administered **e-mail account** provided to students will be considered the individual's official university e-mail address. It is the responsibility of the account holder to ensure that e-mail received from the University at his/her official university address is attended to in a timely manner. You can read about the privacy and security of the UWO email accounts [here](#).
- ☒ Emails will be monitored daily; students will receive a response in 24 – 48 hours, **excluding weekends**

8. Evaluation

Below is the evaluation breakdown for the course. Any deviations will be communicated.

Assessment	Format	Weight	Due date
Labs	Lab questions & maps	60%	See schedule and OWL
Term project	Infographic-style map	10%	December 12, 2025
Final exam	Written	30%	TBD



The evaluation methods described in the course outline are essential requirements for the course.

Students are responsible for material covered in the lectures as well as the assigned chapters/sections in the text.

☒ All lab assignments are **due at 11:55 pm on the day BEFORE the start of the next Lab**. For example, if your lab is on Wednesday your Lab 1 will be due on Tuesday, the day before we start Lab 2.

Note: some labs are given as two-week labs and some are only one-week labs. A full schedule of due dates will be posted on OWL.

☒ All assignments must be submitted digitally via OWL assignments. All responses must be typed and uploaded in the format specified (e.g., pdf). **All maps must be generated in colour.** **Student's names and student numbers must be on each assignments component.**

☒ Assignments will be accepted up to **48 hrs** after their scheduled due date, excluding weekends (e.g., if your lab is due on a Tuesday, you have until Thursday to hand it in).

☒ After an assessment is returned, students should **wait 24 hours** to digest feedback before contacting their evaluator; to ensure a timely response, reach out within 7 days. Click [here](#) for a detailed and comprehensive set of policies and regulations concerning examinations and grading. The table below outlines the University-wide grade descriptors.

A+	90-100	One could scarcely expect better from a student at this level
A	80-89	Superior work which is clearly above average
B	70-79	Good work, meeting all requirements, and eminently satisfactory
C	60-69	Competent work, meeting requirements
D	50-59	Fair work, minimally acceptable
F	below 50	Fail

Information about late or missed evaluations:

☒ Assignments will **NOT be accepted for grading more than 48 hours** (excluding weekends) after the scheduled due date & time (e.g., if your assignment is due on a Tuesday, you have until Thursday to hand it in).

☒ Late assessments **without** an academic consideration request will be subject to a late penalty of **10 %/day**.

☒ Late assessments **with** an academic consideration request - please discuss the new submission deadline with Dr. Lee.

Grades will not be adjusted on the basis of need. It is important to monitor your performance in the course. Remember: *You* are responsible for your grades in this course.

9. Accommodation Policies

Students with disabilities work with Accessible Education (formerly SSD) which provides recommendations for accommodation based on medical documentation or psychological and cognitive testing. The accommodation policy can be found here: [Academic Accommodation for Students with Disabilities](#).

General Information about missed work:

University policy on academic considerations are described [here](#). This policy requires that all requests for academic considerations must be accompanied by a self-attestation. Further information about academic considerations, and information about submitting this self-attestation with your academic consideration request may be found [here](#).

Please note that any academic considerations granted in this course will be determined by the instructor, in consultation with the academic advisors in your Faculty of Registration, in accordance with information presented in this course outline.

Absence from Course Commitments

Students must familiarize themselves with the [Policy on Academic Consideration – Undergraduate Students in First Entry Programs](#)

Students missing course work for medical, compassionate or extenuating circumstances can request academic consideration by completing a request at the central academic consideration portal. Students are permitted one academic consideration request per course per term without supporting documentation. Note that supporting documentation is **always** required for academic consideration requests for examinations scheduled by the office of the registrar (e.g. December and April exams) and for practical laboratory and performance tests typically schedule during the last week of the term. Students should also note that the instructor may designate one assessment per course per term that requires supporting documentation. This designated assessment is described elsewhere in this document. Please note that any academic considerations granted in this course will be determined by the instructor of this course, in consultation with the academic advisors in your Faculty of Registration, in accordance with information presented in this course outline. Supporting documentation for academic considerations for absences due to illness should use the [Student Medical Certificate](#) or, where that is not possible, equivalent documentation by a health care practitioner.

Course Assessments that Require Supporting Documentation

For this course the following assessment has been designated as requiring supporting documentation:

Term project

Accommodation for Religious Holidays

Students should review the policy for [Accommodation for Religious Holidays](#). Where a student will be unable to write examinations and term tests due to a conflicting religious holiday, they should inform their instructors as soon as possible but not later than two weeks prior to

writing the examination/term test. In the case of conflict with a midterm test, students should inform their instructor as soon as possible but not later than one week prior to the midterm.

10. How to Be Successful in this Class:

Students enrolled in this class should understand the level of autonomy and self-discipline required to be successful.



1. Invest in a planner or application to keep track of your courses. Populate all your deadlines at the start of the term and schedule time at the start of each week to get organized and manage your time.
2. Make it a daily habit to log onto OWL to ensure you have seen everything posted to help you succeed in this class.
3. Follow weekly checklists created on OWL or create your own to help you stay on track.
4. Take notes as you go through the lesson material. Keeping handwritten notes or even notes on a regular Word document will help you learn more effectively.
5. Connect with others. Try forming a study group and try meeting on a weekly basis for study and peer support.
6. Do not be afraid to ask questions. If you are struggling with a topic, check the online discussion boards or contact your instructor(s) and or teaching assistant(s).
7. Reward yourself for successes. It seems easier to motivate ourselves knowing that there is something waiting for us at the end of the task.

11. Academic Offences

Scholastic offences are taken seriously and students are directed to read the appropriate policy, specifically, the definition of what constitutes a Scholastic Offence.

All required papers may be subject to submission for textual similarity review to the commercial plagiarism detection software under license to the University for the detection of plagiarism. All papers submitted for such checking will be included as source documents in the reference database for the purpose of detecting plagiarism of papers subsequently submitted to the system. Use of the service is subject to the licensing agreement, currently between The University of Western Ontario and Turnitin.com (<http://www.turnitin.com>).

Computer-marked multiple-choice tests and/or exams may be subject to submission for similarity review by software that will check for unusual coincidences in answer patterns that may indicate cheating.

12. Western's Commitment to Accessibility

The Department of Geography and Environment strives at all times to provide accessibility to all faculty, staff, students and visitors in a way that respects the dignity and independence of people with disabilities.

Please contact the course instructor if you require material in an alternate format or if you require any other arrangements to make this course more accessible to you. You may also wish

to contact Services for Students with Disabilities (SSD) at 519-661-2147 for any specific question regarding an accommodation. Information regarding accommodation of exams is available on the Registrar's website.

More information about "Accessibility at Western" is available.

13. Mental Health

If you or someone you know is experiencing distress, there are several resources here at Western to assist you. Please visit Western's Health and Wellness website for more information on mental health resources.

14. Support Services

Western's Support Services
Student Development Centre

Western is committed to reducing incidents of gender-based and sexual violence and providing compassionate support to anyone who has gone through these traumatic events. If you have experienced sexual or gender-based violence (either recently or in the past), you will find information about support services for survivors, including emergency contacts at https://www.uwo.ca/health/student_support/survivor_support/get-help.html.

To connect with a case manager or set up an appointment, please contact support@uwo.ca.

15. Important Dates

September 4: Classes resume
September 12: Last day to add a first term half course
September 30: National Day for Truth and Reconciliation (non-instructional day).
October 13: Thanksgiving Holiday – Department Office Closed
November 3-9: Fall Reading Week (No classes; Department Office open)
December 1: Last day to drop a first term half course or a full course without penalty
December 9: Classes end
December 10: Study day
December 11-22: Examination Period